

Community Initiatives for Solid Waste Management at Ward Level: The Case of Kumbarakoppal, Mysore, INDIA

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Abstract: The involvement of local citizen, community, resident welfare associations and stakeholders in this process managing waste at household/community level is very much crucial in urban villages for achieving environmental cleanliness. Kumbarakoppal is an urban village which has transformed from village into a neighbourhood in Mysore City. The initiation of community based solid waste management system by forming a Resident Welfare Association at neighbourhood level through segregation, transporting, recovering recyclable wastes and composting at community level has been an effective innovative method. The paper presents the innovate method of managing the solid waste locally in Kumbara Koppal by the Resident Welfare Association and Community Based Organisation with the facilitation from the Local Political Leaders for meeting key challenges solid waste.

Index of Terms: Solid Waste, Community, Composting, Resident Welfare Association.

I. INTRODUCTION

Solid waste is generated at household and neighbourhood levels, which contains both biodegradable and non-biodegradable. These wastes are to be collected, transported, processed and disposed properly. The Solid Waste Management (Handling) Rules, 2000 emphasises on participation of community, welfare associations, and non-governmental organisations for house-house collection, processing and disposing. one such experiment of solid wastes management was initiated in Kumbara Koppal in the City of Mysore by forming Resident Welfare Associations (RWAs) and involving all the stakeholders viz. local citizen, NGO, local community, and elected councillor and. The then Member of Legislative Council, who resided in this area, has been an instrumental in initiating the community based solid waste management in Kumbara Koppal. The paper presents the ward-level initiatives, formation of Resident Welfare Associations, leadership motives for facilitation, stakeholders participation and mobilising local resources for initiating primary collection, segregation, transporting and processing of waste through composting for making litter-free (zero waste) ward and meeting the compliance SWM Rules as well.

II. BACKGROUND OF KUMBARAKOPPAL

Kumbarakoppal is situated on the northern side of Mysore City at 7 kms from the centre of the city, in a ward No. 28. The present estimated population of Kumbarakoppal is

5000. The settlement is typical a transformed urban village with grid-iron pattern and has, many narrow roads and the width of the road varies from 2mts to 9 mts and total length of road is 18.29 kms. It has rural traditions and cultures in many areas. The majority of the houses are country tiled and Mangalore tiled houses. The generation of commercial solid wastes are from 228 shops, 2 choultries, 3 hotels, 11 meat shops, 5 hospitals and clinics and 9 temples.

III. INITIATIVES OF COMMUNITY BASED SOLID WASTE MANAGEMENT BY MLC

The then Member of Legislative Council (MLC) was mooted the concept of ward-parliament in the minds of the local residents. He also took up the issue of initiation of community based solid waste management proposals with the elected corporators and officials of the City Corporation and initiated consultative process for identifying the stakeholders for facilitating the programme. The MLC took initiative to convince the City Corporation officials, local residents along with the councillor and EXONORA for initiating the process of door-to-door primary collection, segregation of waste both bio-degradable and non-degradable waste at the residents' door-step levels, transporting this waste using hand carts and tricycles and composting of solid waste at community level.

The MLC undertook drives for redressing citizen grievances, ward level day-to-day problems and maintenance works to involve the people actively in the processes. His facilitation on re-development of a slum in collaboration with the help of Karnataka Slum Clearance Board, construction of access road through City Corporation, formation of shree-shakthi groups for micro-financing, initiation of skill training, entrepreneurship development and self-employment ventures in collaboration with the SJSRY, Industries and Commerce Department, RUDSET, and other women development organizations, have developed the confidence in the minds of the local residents. A series of weekly meetings and advocacy programmes followed by involving city corporation health officers, engineers, pourakarmikas, health inspectors have helped in getting support from the City Corporation in identifying land and building including equipments and implements for carrying out the solid management process at ward level. When solid waste management was set motion with the help of EXONORA Kumbarakoppal extension, the Nirmala Nagar Scheme was introduced by the Government to

form Resident Welfare Association and Federations of RWAs to make more institutional arrangement at ward level.

IV. FORMATION OF RWAs

The guidelines for Resident Welfare Association (RWA) were issued by the Mysore City Corporation. An area consists of 500 households in a RWA is to be demarcated spatially in a map in each ward. One representative leader is to be elected for every 50 households and ten representatives in an RWA consists of an Executive Committee, of which a President, Vice-President, Secretary and Treasurer with 6 Directors. Ward Corporator will be the Honorary President for RWA. A nodal officer from the City Corporation will monitor and supervise the work of RWAs. The responsibilities of RWA are (a) to lay road map and workout timings for collection of solid waste in area and inform to each and every households; (b) to identify primary storage space in the RWA area and place the solid waste in the identified place; (c) to obtain dumping bins from the City Corporation for storing the solid waste; and (d) to initiate action against those littering the solid waste either by the residents or office bearers of RWA.

The Association is required meet in the first week of every month compulsorily and the association visits at least once in a week, each of the households to listen issues/grievances. The representation of all religion, caste and classes need to be ensured in the RWA. The motivational drives were encouraged to build the confidence among the local residents, Environmental Clubs of Schools and Colleges. The association has powers to levy user charges of Rs.10-20 from residents, Rs.20-50 from shop owners and establishments and Rs.50-100 from hotels, chowlry others. The RWA's responsibilities are to include conducting regular monthly meetings, managing accounts, maintaining the tricycles, pushcarts, and equipment. The RWA can engage four members of '*urban relatives*' are also called '*nagara bhandu*' or *pourakarmikas* on contract basis part-time or full time for primary collection with a remuneration fixed from time to time; maintain attendance and look after the welfare of the urban relatives including monitoring.

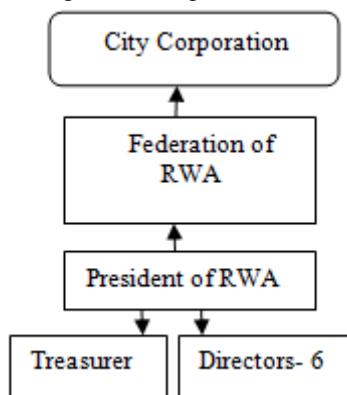


Fig 1. Structure of Resident Welfare Association

Keeping the above guidelines, four Resident Welfare Associations were formed namely Cauvery Extension and Madheswara Extension one each and two in Kumbarakoppal under the honorary chairmanship of the Elected Corporator

of the Area. A stall was opened by the RWAs in Dasara Exhibition and a series of meetings were being organized to solve the problems of RWAs. The structure of RWA and its federation is given in the fig.1. The federations that were formed in Nirmala Nagar scheme is functioning very even though the scheme is winded up.

V. INITIATION OF COMMUNITY BASED SOLID WASTE MANAGEMENT SYSTEM

A. AWARENESS DRIVES

The system of door-to-door collection was introduced in collaboration with Mysore City Corporation and a Non-governmental organization, EXONORA, Chennai with the support of local leaders and stakeholders. The MLC, who resided this area, carried forward messages in the minds of local residents for solid waste management awareness drive. He participated in the streetwise awareness drives, later involved in weekly meetings. He involved in addressing day-to-day local problems of the citizen as a follow-up action in coordination with the officials of City Corporation. The local problem redressal became a tedious and time-consuming task and arranged series of consultations with the City Municipal Commissioner, Honourable Mayor and other officers and got the support from the City Corporation. The MLC along with the local Corporator, RWAs officer bearers, Health/Deputy Health Officer, Engineer, Health Inspector of the area conducted the series of weekly meetings to accelerate the solid waste management drives. The people, who raised the problems in the operation of door-door collection system, were invited for weekly meetings and their doubts used to be cleared in the meeting.

B. COLLECTION AT SOURCE

A two-member team has been visiting each of household for primary collection of waste at source, in their respective areas along the tri-cycle. Initially, about 75% of the households were responded in the area. The Collection time starts at 7.00AM and continued up to 10.00AM in the morning and now all the households are participating in door-door collection.

C. SEGREGATION OF WASTE AT SOURCE

While collecting the waste from each of the households, the organic waste and inorganic wastes were segregated and put them in different containers. The organic waste was further segregated at the processing yard (grave-yard) to use only bio-degradable materials in the compost bins. The non-biodegradable wastes were further segregated for marketing the wastes. The wastes are segregated every day immediately after transport to the grave yard and when the solid waste is fresh. The solid waste which lying on the road contains both bio-degradable and non-bio-degradable is also transported to compost yard and segregated on day-to-day basis.

D. TRANSPORTATION AND PROCESSING OF WASTE

Tricycles and hand pushcarts are used to collect and

transport the household, commercial and street wastes from the locality to the processing graveyard by urban bandhus.

E. COMPOSTING

Two methods namely composting and vermi-composting were followed. Composting was done in a simple method of aerobic digestion. Organic segregated wastes were dumped by following the wind rose method, wherein, Bamboo containers with a dimension of 5' x 12' x 5' constructed. The container exposed to air, but located below the banyan tree. Wind-rose was formed and cow dung was sprayed over the wind rose to accelerate the process of decomposition as a culture. It was allowed to decompose for 45 days and taken out for sieving to get the compost materials. The organic waste was allowed for 15 days within in the bamboo container with the cow-dung treatment. After that semi-composted material was taken out and verms were added in a shaded area.

VI. EFFORTS FOR RESOURCE MOBILIZATION

A. CONTRIBUTION FROM CITY CORPORATION

City Corporation has contributed towards salary and other expenditure initially until the community generated out of waste. When the Resident Welfare Associations were formed, the City Corporation provided infrastructure in the form of land building and the equipments and tools for promotion of the Community Based Solid Waste Management System and are: (a) a piece of land allotted (earmarked) in a burial ground of Kumbarakoppal, (b) a shed with a dimension of 25'x60' was constructed and provided for the community managed solid waste management and (c) equipments. After the introduction of Solid Waste Management Cess, the entire expenditure of Salary and equipments are met out by the Mysore City Corporation to promote the best practices of zero waste management.

B. CONTRIBUTION FROM LOCAL AREA DEVELOPMENT FUND

When the EXONORA withdrew their support, MLC had contributed out of his local fund for payment of salary and other expenditure for a short while when the project was under crisis, until the corporation has taken over the responsibility.

C. SALE OF COMPOST AND NON-BIO-DEGRADABLE MATERIALS

The Resident Welfare Association has generated funds out of sale compost and waste, 3-4 tons per month an average. The compost was initially purchased by the Mysore City Corporation for park management and urban forestry. The Federation of RWA make sales to local residents at Rs.3 to Rs.4 per kg to generate funds for procurement and management of equipments and compost plant. The Federation is supplying compost to the Mysore City Corporation at free of urban forestry.

D. COLLECTION OF USER CHARGES

An Amount of Rs.10/- from each household was collected on a monthly basis initially. Hardly 10% of the people

responded to pay user charges of Rs.10 on monthly basis. 30-40 households paid user-charges in each of the RWA areas. People, who have come forward to pay user-charges on their own voluntarily from them user-charges, were collected. An amount of Rs.50-100 per event was collected from the Community Building (Chatra), when it was used for individual purposes. After the introduction of Solid Waste Cess, the Mysore City Corporation has taken the responsibility of to fund for the project and the user charges has been stopped.

VII. LOCAL SUPPORT AND CO-OPERATION

Firstly, the community initiatives were supported fully well by the local councillor. The Local Member of Legislative Assembly (MLA) was also giving encouragement to this type of local action oriented program. Secondly, the Community has a strong base and long history of supporting local initiatives. The local pachayaths (local governance) was very strong in this settlement and it has been a tradition where in people used to participate in the local area developmental activities. Kumbarakoppal Abhyudaya Sangha (KKAS) was in operational which had a legal status with formal organisation, having registered under the Karnataka Societies Registration Act. As per the Abhyudaya Sangha, the extension area was divided into 8 groups (i.e., 8 zones) each group members elects one leader to represent the Sangha and support for area developmental activities which were initiated by the leaders. The people used to recognise the work of group leader and used to give respect for their dedicated works.

The main initiatives which were undertaken by the KKAS were:

- i)Building the Choultry including its maintenance
- ii)Building Temple including its maintenance

Even though, people used to support for different political parties among the members of the groups or leaders, the main strength of this settlement was that people used unit together for developmental works even though there are political differences and their personal differences used to solve in the group meetings by themselves. The involvement of Member of Legislative Council (MLC) had given big boost for the community initiatives.

The MLC was a local resident of the area, approachable by the people to solve their day to day problems. He used to involve in the local sangha activities and community activities as well. He earned reputation when he was a Chairman of the Mysore Urban Development Authority, and he employed innovative approaches to solve the problem of housing in the City of Mysore which has brought lot of laurels to him. He had recognised the factor of local empowerment of the people and innovativeness in community based solid management by collecting information both from the local people and officers of City Corporation. He started involving in the program, had dialogues with the people and worked for development of area resulted in the mobilising the support of local people to the program.

VIII. THE KEY CHALLENGES OF THE PROJECT

The key challenges faced by the project are as follows:

1. Involving the people in the local community initiatives.
2. Addressing the local grievances and basic amenities delivery problems and make follow-up action by the MLC and Corporation on day-to-day basis
3. When people were ready to implement the program, there was no approval of Nirmala Nagar Scheme at the Government level which frustrated the local community
4. Transfer of officials from one section to another section is common but to retain in the same section for long time for supporting the new initiatives was a challenging task
5. Initially, EXONORA agreed to extend support and later withdrawn to share their community based solid waste management experience.
6. Willingness to pay to change the mindsets of the people
7. Whether the Mysore City will extend the support of purchasing the manure from the Community for sustaining the project at least for 2 to 3 years.

IX. STAKEHOLDERS PARTICIPATION

The following stakeholders were participated in introducing the system.

TABLE I. ACTORS/STAKEHOLDERS AND TYPE OF SUPPORT EXTENDED

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<i>A. Mysore City Corporation</i>	<ul style="list-style-type: none"> ♦ Extended full support ♦ Involved Health Officer, Deputy Health Officers, Environmental Engineer and health staff in the programme ♦ Involved Project Officers and Community Organisers in the Nirmala Nagar scheme and Zero Waste Management Project ♦ Provided equipments and implements ♦ Provided land, building and infrastructure support and issued orders to participate in weekly meetings, awareness programmes including training/workshops to stakeholders ♦ Provided Pourakarmikas initially and nagara bundhu for street sweeping ♦ Purchased the compost from the RWAs initially and now using for urban forestry and horticultural gardens ♦ Provided an honorarium to personnel engaged in primary collection in the initial stages for three to four months and now entire cost is met. ♦ Opened Samwada (Interaction) Programme in Exhibition Ground for public as well as functionaries for promotion ♦ Opened stalls at Dasara Exhibition for Shree Shakti to popularise the scheme in the state ♦ Promoted Self Employment ventures, convergence with line departments and NGOs ♦ Entered Memorandum of Understanding with the Federations of RWA to provide grants for management of solid waste
<i>B. EXONORA</i>	<ul style="list-style-type: none"> ♦ Launched initially the system of primary collection in the ward no.35 ♦ Provided training and necessary skills. ♦ Run the primary collection system for six months;
<i>C. Resident Welfare Association</i>	<ul style="list-style-type: none"> ♦ The office bearers involved in the process of door-to-collection. ♦ Supervised of the operation and management of the system. ♦ Participated in the training programmes organized by the MCC and other organizations. ♦ Participated in the Federation of RWAs Activities. ♦ Managed the funds, personnel and plant at the ward level.

<i>D. The Then Member of Legislative Council</i>
<ul style="list-style-type: none"> ♦ had series of discussions with the experts, institutions, local self-government, and individuals for introducing the primary collection system in the ward ♦ Involved the EXONORA by extending full for introduction of the scheme. ♦ Involved in the meetings of community ♦ Involved the MCC officials and ward corporator and NGOs and all the local leaders for effective implementation. ♦ Attempted to address the redressal system along with the other stakeholders. ♦ Involved in the interaction programme at exhibition ground and making drive for promoting the concept in other wards of the city. ♦ Promoted the concept of Ward Parliament and built confidence in the minds of people of we feelings ♦ Extended initial financial support RWA was in financial crises in the beginning for sustenance of the project. ♦ Facilitated the <i>shree-shakti</i> and self employment ventures in the ward with the help of Industries and Commerce Department, RUDSET (an institution committed to skill development training) and entrepreneurs.
<i>E. Local Elected Corporator</i>
<ul style="list-style-type: none"> ♦ Extended the full support for community based activities and self employment programme in the ward.
<i>F. Mysore Environmental Trust</i>
<ul style="list-style-type: none"> ♦ Provided series of training and guidance to the RWAs
<i>G. Community Members</i>
Convinced about the programme and extending support for the system.
<i>H. Federations of RWAs</i>
<ul style="list-style-type: none"> ♦ The Federation of RWA has taken the responsibility managing the solid waste in the ward no 28. It has entered Memorandum of Understanding with the Mysore City Corporation for availing funds, promote community development and zero

TABLE II. STRENGTHS AND WEAKNESSES

<i>A. Willingness to pay to change the mindsets of the people</i>
<i>Strengths</i>
<ul style="list-style-type: none"> ♦ Primary door to door Collection from all household level and Segregation of waste at source ♦ Shelter has been provided to compost yard ♦ Local elected Corporator support ♦ Local Politician the then MLC residing the same ward and dedicated to promote the ward parliament concept ♦ MCC officials have involved ♦ Locally managed Composting and Zero Waste Management ♦ Support from Local government both in infrastructure and finance ♦ Involvement of NGOs, philanthropist, experts in Management ♦ Indigenous local technology. ♦ Federation of RWA has taken the responsibility of Zero waste Management
<i>B. Weaknesses</i>
<ul style="list-style-type: none"> ♦ Segregation of solid waste by household not effective. ♦ Improper management of compost yard which requires environmental improvement.
<i>C. Opportunities</i>
<ul style="list-style-type: none"> ♦ Sale of compost in shops through value addition of nutrients and through proper marketing strategy ♦ Introduction of Innovative Practices and Reforms under JNNURM project ♦ Budget support from City Corporation
<i>D. Threats</i>
<ul style="list-style-type: none"> ♦ Resistance from people for bird menace, odour and unclean atmosphere in grave yard.

X. FINANCIAL MANAGEMENT

The community members have started maintaining accounts after establishing the formal organisation of RWA in May 2005 and before that it was maintained on ad-hoc basis. It has been observed from their recurring expenditure that the RWA spent an amount of Rs.1.051/- lakhs for seven months period, which worked out to be an average Rs.15,000/- per month. The expenditure mainly incurred to honorarium to eight personnel, who have involved in door-to-door collection and a supervisor. An amount of Rs.1400/- for the collectors and Rs.3000/- per month for the supervisor was provided for their work from morning 7.00 am to 1.00 pm. Now, the urban bandhus have been provided with minimum wages of government with all allowances. After the city government's introduction of solid waste management cess, the entire expenditure is met by the City Corporation.

XI. LEARNING POINTS

- i) Community initiatives and democratic processes of community development have helped them to build strong community structures of Resident Welfare Association in Kumbarakoppal settlement.
- ii) Strong Political support under the leadership of the then MLC, and elected representatives and official support reinforced confidence levels among the people.
- iii) Awareness to people by the community and local community leaders was a major driving force
- iv) Community managed compost created challenge among the local residents
- v) The revenue generation in the form of user charges and sale of compost was sufficient to meet the management expenses to run the system on a sustainable system.
- vi) Handhold support for the community initiatives from the local leaders was very crucial when operational was difficult due paucity of funds.
- vii) Local cost effective technology options were easily managed by the local RWA and Federation
- viii) Significant stakeholder's participation has enabled the RWAs for proactive participation.

XII. SUGGESTIONS FOR STRENGTHENING COMMUNITY INITIATIVES

- i) Resident Welfare Association needs to be undertaken awareness programmes on segregation at source and its impact on health.
- ii) Capacity Building and Training to be taken on war-footing basis
- iii) Exchange visits to be organised to other cities of selected local residents,
- iv) Awards to be instituted for encouragement of members and local residents to take active part in the processes.
- v) Information Education and Communication component to be introduced to strengthen the community structures

- vi) Revolving Funds of Rs.1.00 to be provided for each of RWAs for mobilisation of funds and generate fund.
- vii) All the Federations and RWAs to be registered to get access to financial support.
- viii) Budgetary support to RWAs and Federations to be provided by the City Corporation.
- ix) The Neighbourhood Groups and Neighbourhood Committees of SJSRY scheme are to be involved in the process of community empowerment.
- x) Shree-skati groups and neighbourhood groups may be engaged for waste collection and for their local economic development
- xi) Alternative leaders need to be identified and their leadership skills to be developed for sustenance of the project
- xii) Alternative mechanism for sale of compost with enrichment and branding may be undertaken to capture the market through community members
- xiii) Creation of improved infrastructure namely, concrete base for handling the solid waste, collection of leach ate chambers, shelter to cover the compost yard and proper tools including hand groves, landscaping of grave yard, environmental improvement is crucial and improvement measures to be undertaken immediately.
- xiv) The documentation best practices are to be undertaken in the form of Audio Visuals and Case Studies and case lets.

REFERENCES

- [1] Anschutz, Justice, "Community Based Solid Waste Management and Water Supply Projects: Problems and Solution". UNEP working paper 2, The Netherlands, 1996.
- [2] Yadav, Ishhwar Chandra adn Linthoingambi N. Devi, "Studies on Municipal Solid Waste Management in Mysore City: A Case Study", *Report and Opinion*, 1(3), pp-15-21, 2009 www.science.net
- [3] Shankar B, "Community Based Solid Waste Management: The Case of Ward No.35 (Kumbarakoppal), Mysore", State Institute of Urban Development, Mysore, 2007.
- [4] B. Shankar and Chidambaram, Urban Poverty Alleviation Experiences of Community Development Initiatives in Karnataka, *International Journal of Recent Trends in Engineering*, Vol.1, No.6, ACCEE, Finland, pp 72-76, 2009.

BIOGRAPHY



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